

TWO NEW SPECIES OF *ALOE* (LILIACEAE) FROM SOUTH TROPICAL AFRICA

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ABSTRACT

Two new species of *Aloe* (Liliaceae) are described and their apparent relationships discussed as well as some aspects of the possible identity of *Aloe baumii* Engl. & Gilg. The positions of the new taxa in the "Key to the species" in Reynolds, *The Aloes of Tropical Africa and Madagascar* (1966), are also indicated.

UITTREKSEL

TWEE NUWE SPESIES VAN ALOE (LILIACEAE) VANAF SUID-TROPIESE AFRIKA.

Twee nuwe soorte *Aloe* (Liliaceae) word beskryf en hulle skynbare verwantskappe sowel as sekere aspekte van die moontlike identiteit van *Aloe baumii* Engl. & Gilg. word beskryf. Die posisie van die nuwe taksa in die sleutel tot die soorte van Reynolds "*The Aloes of Tropical Africa and Madagascar* (1966)", word ook aangedui.

Aloe esculenta Leach, sp. nov.

Aloe rubrolutea sensu Reynolds, *Aloes S. Afr.*: 327 (1950), pro parte quoad specim. Hahn s.n. in Reynolds 2423 et distrib. Ovamboland.—sensu R. Story, in *Bot. Surv. S. Afr. Mem.* **30**: 15 (1958).—sensu Jacobsen, *Handb. Succ. Pl. I*: 199 (1960), pro parte quoad distrib. Ovamboland.

Aloe littoralis sensu Reynolds, *Aloes Trop. Afr. Madag.*: 317 (1966), pro parte quoad specim. Codd 7157 et distrib. Barotseland et Ovamboland.

It also seems probable that this is the *A. baumii* referred to by Warburg, in his account of Baum's Kunene-Sambesi Expedition, as being common in the Humbe region.

A. littoralis Bak. arcte affinis sed plantis acaulis, saepe caespitosis et habitu frutescenti; rosulis parvioribus, foliis paucioribus; foliis maculis albidis grandibus copiose transverse valde notatis; inflorescentia ad medium laxe pauciramosa; bracteis plerumque grandioribus usque ad 27 mm longis; floribus subclavatis, stigmatibus usque ad 8 mm exserto differt.

Plantae acaules vel interdum caule crasso, brevi (usque ad 40 cm), saepe decumbenti, saepe caespitosae et habitu frutescenti. *Folia* c. 20, rosulata, 40—50 (60) cm longa, basi 7—8 (10,5) cm lata, gradatim decrescens versus apicem, plerumque patula, saepe recurva; *supra* basi plana, superne profunde canaliculata, grisea vel griseo-viridia interdum subroseo-brunnescentia, copiose albo-maculata, maculis lenticularibus irregulariter transverse notata; *subtus* valde convexa, plerumque spinarum atro-brunnearum acutarum serie mediana valde armata; *margines* leviter sinuato-dentati vel interstitiis rectis, dentibus brunneis

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Plants forming clumps near Ondangua, Ovamboland.



Plants in dense masses near Roçadas, S. Angola.

FIG. 1.
Aloe esculenta Leach.

acutis deltatis, 3—5 mm longis, 10—20 mm distantibus ferociter armati. *Inflorescentia* paniculata e medio laxe pauciramosa, 1—3 simultanea, plerumque c. 1.5 m, raro usque ad 2,3 m alta; *pedunculo* basaliter plano-convexo deinde tereti; ramis 3—5, initio late patulis deinde plus minusve abrupte erectis, raro ramulosis; *racemis* plerumque 3—6, raro ad 9, anguste cylindrico-acuminatis, c. 6 cm diam., 30—40 cm longis, ubi fructicantibus usque ad 80 cm interdum elongatis. *Bracteae* ovatae acutae, tenues scariosae albiae, valde deflexae, 20—27 mm longae, 10—11 mm latae, 5 vel multinervatae. *Pedicelli* 5—6 mm longi. *Perianthium* initio coccineum demum flavescens, cylindrico-trigonum subclavatam, 28—30 mm longum, circum ovarium c. 6 mm diam. supra medium usque ad 8 mm amplificatum; *segmenta exteriora* per 15—18 mm libera, 7-nervata, nervis 3 longioribus ad apicem congestis; *segmenta interiora* latiora, obtusiora, nervis 3 prominentibus confluentibus, carinam obtusam formantibus; marginibus latis, albido-translucentibus. *Filamenta* alba; *antheris* usque ad 6 mm demum exsertis. *Ovarium* c. 7 mm longum, 3 mm diam; *stylus* pallide stramineus; *stigma* usque ad 8 mm demum exserto. *Semina* atro-brunnea, ala membranacea albido-translucenti, atro-punctata, 7,5—12 mm longa, 4—5 mm lata.

Typus: Angola, Huila Distr., *Leach & Cannell 13818* (BM; LISC; PRE, Holo.; SRGH).

ANGOLA: Huila Distr., Pereira d'Eça, alt. c. 1 000 m, fl. 7.viii. 1967, *Leach & Cannell 13818* (BM; LISC; PRE; SRGH).

ZAMBIA: Barotseland, ± 24 km S. of Nangweshi, *Codd 7157* (PRE).

S.W. AFRICA:—1715 (Ondangua); ± 16 km S. of Ochikango (-DB), fl. 7. viii. 1967, *Leach & Cannell 13817* (PRE); Ondangua, open sandy flats with scrub mopane (-DD), Hort. Windhoek, fl. July 1961, *Giess & De Winter 2159* (PRE); ± 16 km N. of Ondangua (-DD), fl. 23.vii. 1965, *Leach, R. D. & E. Bayliss 13037* (K; M; SRGH; WIND).

1820 (Tarikora); Nama Pan (-DC), fl. 7.viii. 1955, *Story 5135* (PRE).

1821 (Andara); Caprivi Strip, Andara (-AB), 1968, *S. Roux* s.n. (PRE).

Without precise locality:

“N. Ovamboland near the Kunene River”, cult. & fl. Johannesburg, 18.viii.1941, cum photo., *Hahn* s.n. hort. *Reynolds 2423* (PRE);

“Kaokoveld Native Reserve”, *Dr. S. Thompson* s.n. (PRE).

BOTSWANA: 1821 (Andara); Old Mohebo (-BD), cult. & fl. Nelspruit, 11.vii.1964, comm. *Mockford*, hort. *Leach 12294* (PRE).

The category to which this taxon should be assigned has provoked much thought and discussion; although quite distinct, it is obviously closely related to *A. littoralis* (syn. *A. rubrolutea* Schinz) of which it could perhaps be considered to be an ecologically separated subspecies. However the extent and constancy of the differences, reinforced as they are by the extensive but apparently discrete distribution of the vast numbers of plants involved and considered against the

background of the characters used in the present classification of the genus, have finally persuaded the writer that this newly described taxon should be accorded specific rank. It is in any event not considered to be opportune to introduce subspecific rank at this stage of our knowledge of the genus, and particularly of the group of which *A. littoralis* and *A. esculenta* are members.

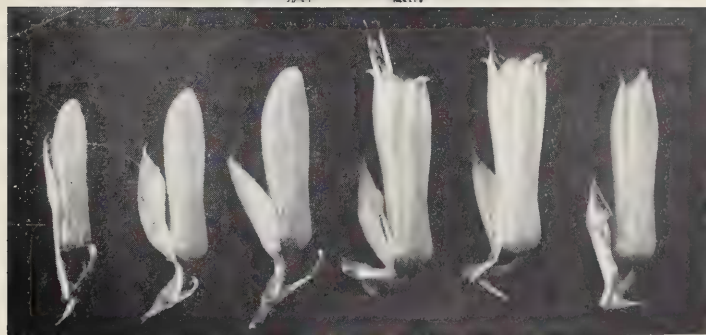
In common with most species in this difficult genus the extent of variability of such characters as leaf markings, size of bracts, pedicel and perianth length, extent to which anthers and style are exerted etc. is such that it may sometimes be found to be extremely difficult to differentiate between herbarium specimens of *A. littoralis* and *A. esculenta* when there is no indication of habit or of the branching of the inflorescence; however, when these details are known, or in the field, it is considered that no difficulty should be experienced.

The most obvious difference lies in the respective habits of the two species: *A. littoralis* is essentially a caulescent, simple stemmed, solitary plant, whereas the acaulescent *A. esculenta* is a gregarious species, frequently of shrubby habit and often forming clumps both by division of the rosettes after flowering and by offsets from the base. Individuals are also generally much smaller, with fewer, proportionally narrower leaves which are more spreading recurved than those of *A. littoralis*.

The leaves of the new species are copiously white-spotted, with the large conspicuous spots arranged in transverse wavy bands; the leaves of *A. littoralis* are also sometimes white-spotted, particularly when young, but never as conspicuously as those of its relative.

A few thorns are occasionally found on the median line towards the apex, on the underside of the leaves of *A. littoralis*, these also being mostly restricted to young plants, but in *A. esculenta* a similar line of strong thorns appears always to be present and to extend for about two-thirds the length of the leaves which are also sometimes sharply keeled along the same line.

The inflorescence of *A. esculenta* is a laxly, 3—5 (7) branched, open panicle, branched from about the middle with initially widely spreading, mostly simple branches, so that the usual number of racemes is 3—6 (the maximum counted being 9). The inflorescence of *A. littoralis*, however, is usually branched low down with more numerous less widely spreading branches, the lower of which are generally rebranched, so that there may be 20 or more closely set racemes to one inflorescence. A young plant of this latter species from the Sabi valley in Rhodesia, cultivated in Salisbury and flowering in May/June 1970 bore an inflorescence with 12 branches and 24 racemes. The length of the racemes appears to be a somewhat variable character in both species although those of the new species seem generally to be longer and slightly less densely flowered.



Flowering racemes with subclavate flowers 1:1.
Leach & Cannell 13818, near Pereira d'Eça, S. Angola.

FIG. 2.
Aloe esculenta Leach.

The bracts of *A. esculenta* are larger than those of its relative, averaging 20 mm or more (up to 27 mm) in length as compared with 12–18 mm; however this character appears to be no more reliable in individual instances than it is generally in the genus, e.g. those of Story's plants from Nama Pan are comparable with those of *A. littoralis* while in the rather disjunct colony in Barotseland, represented by *Codd* 7157 they average only ± 10 –11 mm in length, other minor divergencies exhibited by these plants are considered to be no greater than is to be expected in such a widely separated population.

The perianth of the new species is distinctly subclavate, while that of *A. littoralis* is straight or almost so with the stigma seldom, if ever, more than 3 mm exerted against the 8–10 mm normal in *A. esculenta*.

There is also a difference in flowering periods and behaviour: the new species flowers regularly during July and August (both in the wild and in cultivation), while *A. littoralis* is very erratic in its flowering dates (sometimes flowering twice in a season), appearing to be influenced by rainfall far more than by season, although plants generally flower much earlier than does *A. esculenta*.

Finally, Story in *Botanical Survey S. Africa Mem.* 30: 15 (1958) remarks, of plants near Nama Pan, "the leaves were tasted raw and boiled and found to be juicy and not unpleasant." This rather unsuspected character does not however, appear to be entirely constant, as the bitter principle was occasionally found to be present in random samples from populations in Ovamboland and S. Angola in which it appeared normally to be absent. However, all leaves of *A. littoralis sens. str.* which were tasted were found to be extremely bitter.

The habitats of the two species are generally quite different: *A. esculenta* appears to be almost entirely restricted to the recent sandy soils of the flats of the inland drainage areas lying to the south and east of the Cunene river, mainly between the 16th and 18th parallels, on the Ovamboland plains and northwards to as far as Mupa in southern Angola.

A. littoralis sens. str. on the other hand seems to be usually, if not entirely, associated with geologically older formations, and is distributed more or less on a broad arc from Luanda southwards to Windhoek and beyond, thence sporadically across the continent to its most easterly known station, in Moçambique near the Limpopo river some few miles from Pafuri.

Plants of *A. esculenta* attain their maximum size around Ondangua in Ovamboland, where they occur in open situations, usually in association with *Hyphaene*. In this area division of the rosettes and production of offsets is far more frequent than elsewhere, this, as well as the robust growth (plants occasionally develop a stout stem up to about 40 cm high), is thought probably to be due to more favourable conditions, particularly perhaps to the paucity of competition. As one proceeds northward, colonies of *A. esculenta* are seen, which although still densely populated and sometimes even outnumbering the dwarf



Plants from the disjunct population in Barotseland with typically subclavate flowers and far exserted stigma

L. E. Codd 7157, 23 July 1952.

FIG. 3.

Aloe esculenta Leach.

Photo by courtesy of:
Chief, Botanical Research
Institute, Pretoria.

“Mopane” among which they frequently occur, tend to become smaller and less frequent and the plants generally smaller and more often solitary. The main distribution of this species appears to be terminated much more abruptly toward its southern limits, plants being plentiful in the Ondangwa region but seen for only about 25 miles along the road to Namutoni. Near Namutoni a few typically tall-stemmed specimens of *A. littoralis* were seen and this is possibly the nearest approach made by the two distributions.

Such variations as occur seem to be restricted to the disjunct populations which occur around the outer limits of the distribution, such as those previously

mentioned, in which leaves are more erect and the bracts much smaller than in typical populations, and another at Mohembo in NW Botswana near the Caprivi Strip, in which both leaves and branches of the inflorescence are less widely spreading than is normal for the species. Plants at this latter locality appear to have been cultivated in the vicinity of the old police post, but from the records from other not too distant localities it seems quite possible that they were originally indigenous in the area.

It is considered that the foregoing and other minor variations are of no importance in the general context of a genus which normally accommodates such a great extent of variation within accepted specific limits.

Acaulescent plants are also reported from the western end of the Etosha Pan but I have not seen these (nor any herbarium material) and they are not included here. Mr. W. Giess, writing in *Dinteria* 5 (1970) records that although only acaulescent plants are to be found in this region today, it is only recently (at least as recently as 1957) that tall, simple stemmed, typical *A. littoralis* was plentiful.

It seems advisable therefore that a decision regarding these plants and those from Pungo Andongo and elsewhere in Angola, referred to by Reynolds, should be left in abeyance pending further investigation.

Aloe esculenta would "key out" in Reynolds, *The Aloes of Tropical Africa and Madagascar*: 118 (1966) to 56a in:—

Group 9. Mostly series *Verae* Berger emend. Reynolds

2. Perianth glabrous

B. Inflorescence over 1 m tall

(a) Inflorescence simple or few branched

56 *A. metallica* 57 *A. massawana* 59 *A. officinalis*

56a *A. esculenta* 58 *A. vacillans* 59a *A. officinalis* var. *angustifolia*

Appearing to be closest to *A. metallica* Engler & Gilg among these taxa, it is distinguished therefrom by its frequent habit of forming groups from basal offshoots and division of the rosettes; by its generally longer, proportionally narrower spreading leaves which are copiously large white-spotted and armed with strong thorns on the median line underneath; by its more freely branched inflorescence and subclavate flowers with the stigma at length exserted up to 8 mm.

Plants acaulescent or sometimes with a short (up to 40 cm), stout, often decumbent stem; frequently of shrubby habit from division of the rosettes after flowering, sometimes forming clumps by this means when stems are decumbent, or less frequently by offshoots from the base. *Leaves* about 20, rosulate, 40–50 (60) cm long, 7–8 (10,5) cm broad at the base, gradually narrowing to an acute apex, mostly spreading, often recurved; *upper surface* flat low down,



Plant from Old Mohembo, Botswana, flowering at Nelspruit, 17 Aug. 1965. Flowers 1 : 1.

FIG. 4.
Aloe esculenta Leach.

Photos by courtesy of:
the late Dr. G. W. Reynolds.

becoming deeply canaliculate above, grey or grey-green to pinkish brown, copiously white-spotted, with the lenticular spots irregularly arranged in more or less transverse wavy bands; *lower surface* convex, strongly so towards the apex, similar in colour to the upper but more copiously spotted, usually armed with a line of strong, sharp, blackish brown thorns arising from white tuberculate bases on the median line for about half to two-thirds of the length of the leaf, often sharply keeled; *margins* slightly sinuate-dentate or with the interspaces straight, armed with sharp, shiny brown, deltate teeth, 3—5 mm long, 10—20 mm apart. *Inflorescence* a laxly 3—5 branched panicle, with the peduncle basally plano-convex becoming terete above, 1—3 simultaneously from a rosette, averaging 1,5 m tall, exceptionally up to 2,2 m, branched from about the middle with the branches usually initially widely spreading, becoming rather abruptly erect, very sparingly rebranched, so that the inflorescence has generally 3—6 racemes (9 being the maximum counted). *Racemes* narrowly cylindric-acuminate, ± 6 cm diam., 30—40 cm long, sometimes lengthening in fruit to about 80 cm. *Bracts* ovate acute, thin scarious whitish, strongly deflexed, 20—27 mm long, 10—11 mm wide when flattened, 5 to many nerved. *Pedicels* 5—6 mm long, lengthening in fruit to $\pm 12,5$ mm. *Perianth* deep pink, buds grey-tipped, open flowers cream or pale yellow striped, becoming more yellowish with age, cylindric-trigonus, subclavate, 28—30 mm long, ± 6 mm diam. across the ovary, enlarging to ± 8 mm above the middle; *outer segments* free for 15—18 mm, 7-nerved, with the 3 central longer, more distinct and confluent at the apex, with a pale yellowish border; *inner segments* broader and more obtuse than the outer, with 3 prominent confluent nerves forming a deep pink obtuse keel, with broad translucent whitish borders. *Filaments* whitish, filiform-flattened, the three inner narrower and lengthening before the outer, with the anthers in turn exerted up to ± 6 mm. *Ovary* 6-grooved ± 7 mm long, 3 mm diam. towards the base, narrowing to $\pm 2,5$ mm towards the apex; *style* pale straw coloured with the stigma at length exerted ± 8 mm. *Capsule* somewhat obtusely trigonus, $\pm$ oblong-ellipsoid, ± 26 mm $\times$ 15 mm when almost ripe. *Seeds* dark brown, minutely sparingly tuberculate, with a broad, black speckled, translucent whitish membranous wing, orange-tinged around the seed, 7,5—12 mm long, 4—5 mm broad, usually simple, sometimes with a slight keel or smaller wing set at right-angles to the main wing.

There is a strong possibility that this taxon could be the *Aloe baumii* Engler & Gilg, which Berger included in the synonymy of *A. zebrina* Bak.; this synonymy was subsequently accepted by Reynolds, apparently on the evidence of the photograph of plants at the Kubango River (Warburg, Kunene-Sambesi Exped.: t.90, 1903) which purports to be of *Baum* 275 (the type of *A. baumii*) and which certainly appears to represent *A. zebrina*. However, the description by Engler & Gilg appears to differ from that of *A. zebrina* and from the photo-

graph in several details, e.g. "Floribus flavido-rubrescentibus" and "tepalis lancolato-linearibus" would seem to fit the flowers of *A. esculenta* rather than of *A. zebrina* while "Paniculae ramis ut videtur a basi usque ad apicem dense florigeris" could scarcely be applied to the laxly flowered racemes of the latter species; furthermore there is no mention in the description of a basally inflated perianth. It is also stated in the narrative that plants are common from the Serra de Chella to beyond Cuito and that natives in the vicinity of Humbe (near Roçadas of today) made cakes of the "Blumen", "Bluten" and "Blattern", scarcely practicable with *A. zebrina* which is relatively scarce in this area while *A. esculenta* occurs in thousands in densely populated colonies. Story in Botanical Survey S. Africa Mem. 30: 15 (1958) mentions that *A. rubrolutea* Schinz occurred near Nama Pan with "a habit similar to that of *A. zebrina*" and "growing in patches of an acre or so," "among the hundreds of specimens seen there were none arborescent"; these plants are now included in the author's concept of *A. esculenta*. Plants were in full bloom in early August, and, perhaps most significantly "the flowers are stripped off the flowering stalk and pounded to make a spinach-like vegetable."

Various other references to the edibility of the flowers of *A. zebrina* appear all to arise from the description of this use by Warburg *l.c.* which it is considered can apply, in view of the circumstances outlined above, only to *A. esculenta* (*A. ?baumii*).

Berger in Gardener's Chronicle 35: 226 (1904) draws attention to some of the discrepancies between the description of *A. baumii* and plants in cultivation at La Mortola under that name, but finally, on the evidence of the apparent identity of those plants with the photograph in Warburg (*l.c.*), considered *A. baumii* to be synonymous with *A. zebrina*.

It seems probable from the foregoing that Berger's plants were, in fact, different from that of Engler & Gilg. However, as it has not been possible to locate a specimen of *Baum* 275, it appears to be advisable to accept the photograph as representing *A. baumii*, as previous authors have done, until concrete evidence to the contrary is forthcoming.

A puzzling circumstance is that the flowering date of *Baum* 275 is given as October, a date which does not coincide with any of the recorded flowering times of either species.

***Aloe inamara* Leach, sp. nov.**

A. veseyi Reynolds affinis sed racemis brevioribus; bracteis angustioribus tantum 1-nervatis (rarissime 2); pedicellis longissimis; floribus rubiginosis basaliter truncatis valde ampliatis, genitaliis vix vel haud exsertis; succo inamaro differt.

Plantae scopulis dependentes, interdum rosularum tegetes pendentes usque ad 3 m longas formantes; surculis e basi exilientibus caulibusque usque ad 2 m longis $\times$ c. 2 cm diam., superne pauciramosis tantum ad apicem foliatis, foliorum veterum reliquiis amplexicaulibus vestitis, internodiis c. 1 cm longis. *Succus* inamarus luteus. *Folia* plus minusve 9, rosulata, 45—60 (90) cm longa, basi c. 4—5 cm lata, valde patula, deorsum versus falcata, usque ad 1 cm crassa basin versus; *supra* plana vel leviter concava prope basin, superne plana vel



Photo: L. C. Leach

FIG. 5.

The type locality of *Aloe inamara* Leach, Quicombo River mouth.

saepe convexa, pallidula flavovirentes (in apricis brunnescentes) obscure subtiliter lineata, maculis H-formibus pauci- vel numerosi-maculata, interdum fere immaculata; *subtus* convexa, pallidiora copiosius maculata, maculis plus minusve fasciata; *margines* aliquam translucetes cartilaginei, albidii vel subrosei, dentibus albidis, saepe apice brunneis, deltatis vel leviter uncinatis, 0.3—1 mm longis, irregulariter 4—20 mm distantibus; interstitiis leviter concavis basin versus, superne plus minusve rectis. *Inflorescentia* pendula paniculata, 40—55 cm longa, supra medium 4—6 ramosa; racemis arcuato-ascendentibus; *pedunculus* 30—45 cm longus, basi c. 7 mm latus, leviter biconvexus, superne teres, c. 5 mm diam., obscure striatulus, e viridi brunneus, glabrus. *Racemi* breviter cylindraceo-conici vel fere subcapitati, racemo terminali c. 7.5 cm longo, c. 7.5 cm diam.,



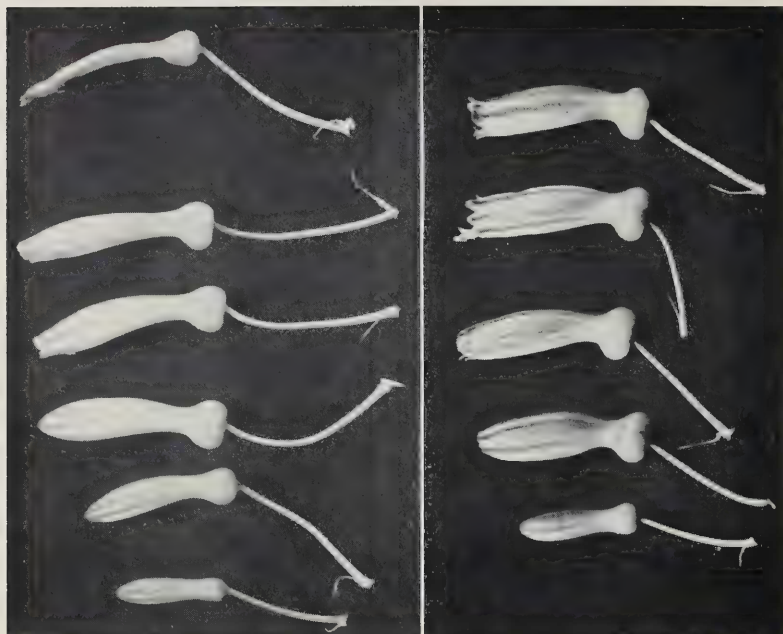
Photo: I. C. Cannell

FIG. 6.

The type plant of *Aloe inamara* Leach, flowering in habitat.

laterali brevior, pedicellis, gemmis floribusque valde patulis floribus apertis nutantibus; coma apicali parvula albida bractearum sterili instructa. *Bracteae* triangulares attenuatae 7,5—9 mm longae, c. 3 mm latae, albae scariosae, nervo uno atro-brunneo conspicuo praeditae. *Pedicelli* 22—27 mm longi. *Perianthium* rubiginosum, ad apicem viridulum, 26—29 mm longum, obtuse trigonum, leviter decurvatum, basi truncatum valde ampliatum ad 8 mm diam. inde abrupte constrictum, apicem versus gradatim ampliatum ad c. 7 mm diam., denuo angustatum, ore aperto c. 6 mm diam.; *segmenta exteriora* per 6,5—8 mm libera, nervis 3 brunneis ad apicem confluentibus et nervis 2 lateralibus brevioribus obscurioribus; *segmenta interiora* latiora nervis 3 confluentibus,

marginibus translucenibus latissimis albidis. *Filamenta* albida, superne dilute virescentia; *antheris* vix vel haud exsertis. *Ovarium* pallide viride, c. 5,5 mm longum, c. 2,5 mm diam., 6-sulcatum; *stylo* basi luteo superne virescenti; *stigmatibus* albidis, vix vel haud exsertis.



Photos: L. C. Leach

FIG. 7.

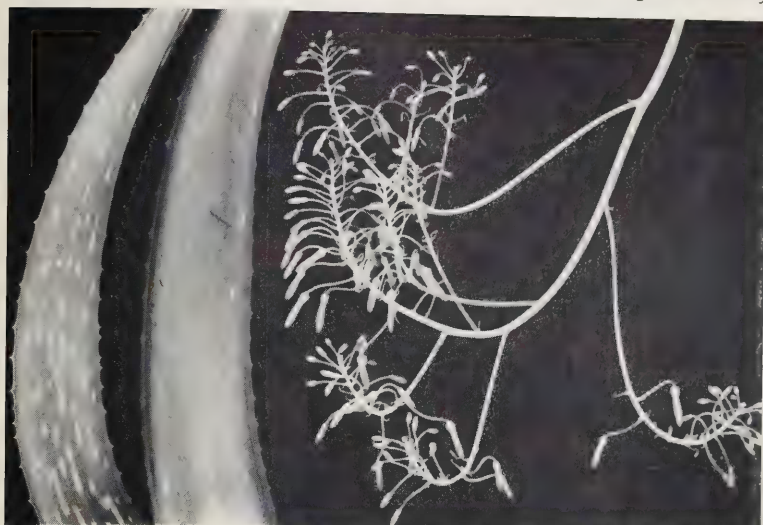
Flowers 1/1 approx. Showing variation in shape.

Typus: Angola, Cuanza-Sul, *Leach & Cannell 14608* (LISC, holo.; PRE).

ANGOLA: Cuanza-Sul Distr., fluvii Quicombo ad orem scopulis dependentes, fl. 11.x.1970, *Leach & Cannell 14608* (LISC; PRE); ibidem Hort. Leach., fl. Nelspruit, 15. xi.1968, *Leach & Cannell 13938* (BM).

With obscurely lineate leaves with whitish H-shaped spots and flowers with a much inflated truncate base, *A. inamara* clearly belongs in series *Saponariae* Berger, in which, in leaf markings and texture as well as flowers with long pedicels and relatively small bracts, its nearest relative appears to be the much larger and otherwise quite distinct *A. swynnertonii* Rendle. However, in many respects the new species appears to be more closely related morphologically to *A. vesityi* Reynolds from Kalambo Falls near the southern end of Lake

Tanganyika, and an as yet undescribed taxon from the Kambole Escarpment, also in north-eastern Zambia; these, in habit, inflorescence and particularly in falcately curved leaves, display a quite remarkably close similarity with *A. inamara*. The trio appears possibly to comprise a most interesting evolutionary



Photos: L. C. Leach

Variation in leaf
markings.

Inflorescence.

FIG. 8.

Aloe inamara Leach.

situation in which it seems that development may have been either divergent or convergent. In this connection it may be noteworthy that a somewhat similar situation occurs in *Euphorbia* in which the western Angolan *E. dekindtii* Pax, *E. atrocarnesina* Leach and *E. semperflorens* Leach are closely related to *E. williamsonii* Leach from north-eastern Zambia, while the very similar distributional link which is evident in *Monadenium* follows an almost identical path from Tchivinguiro and Mount Moco in western Angola to Mbala (Abercorn) in north-eastern Zambia.

The new species differs from both of the Zambian taxa in having a much inflated truncate base to the perianth, much longer pedicels and, it seems, the complete absence of the bitter principle in the sap, which on the evidence of taste appears to be plentifully present in both the related taxa. *A. inamara* differs additionally from *A. veseyi* in its shorter, sometimes almost subcapitate racemes



Photo: I. C. Cannell



Photo: L. C. Leach

FIG. 9.

Aloe inamara at the type locality.

of red flowers, narrower 1-nerved bracts and scarcely or not at all exerted genitalia, and from the Kambole plants in its obscurely lineate, H-spotted leaves which contrast quite sharply with the unmarked grey-green leaves of the undescribed taxon, the flowers of which are markedly trigonously indented after the manner of those from plants in the *A. chabaudii* Schonl. relationship.

A. inamara was found growing on the almost vertical cliffs at the mouth of the Quicombo River, about 10 km south of Novo Redondo; plants are plentiful but grow mostly in quite inaccessible situations; it was consequently not possible to obtain more than the two flowering specimens of the type material.

The species appears to be tolerant of either full sun (leaves then becoming brown) or heavy shade; plants seem to flower rather reluctantly under either condition, although apparently over an extended period.

Plants hanging on cliff faces, with offshoots from the base and stems up to 2 m long $\times$ about 2 cm diam., sparingly branched above, foliate only towards the apex, clothed with the dry amplexicaul remains of old leaves, with the internodes about 1 cm long, sometimes forming pendent mats of rosettes up to 3 m long. *Leaves* about 9, rosulate, 45—60 (exceptionally up to 90) cm long, 4—5 cm wide towards the base, widely spreading, falcately curved with their apices pointing downwards, up to 1 cm thick towards the base; *sap* yellow, lacking the usual bitter principle; *upper surface* flat or slightly concave towards the base, becoming more turgid and often convex towards the apex, or in older leaves often with the apex brown and shrivelled, pale yellowish green (brown when exposed to the sun), obscurely finely lineate with few to numerous, small, more or less H-shaped whitish spots (sometimes almost immaculate); *lower surface* convex, paler and more copiously spotted than the upper, with the spots arranged in more or less transverse wavy lines; *margins* somewhat translucent cartilaginous, whitish or faintly pink, armed with whitish, often brown tipped, deltate or slightly hooked teeth, 0.3—1 mm long, irregularly spaced, 4—20 mm apart, with the interspaces slightly concave low down, becoming straight above. *Inflorescence* a 4—6 branched pendulous panicle 40—55 cm long, upturned towards the apex with arcuate ascending racemes; peduncle 30—45 cm long, ± 7 mm wide at the slightly biconvex base, terete above, about 5 mm diam., slender and wiry, obscurely striatulate, greenish brown, glabrous, with only a trace of bloom. *Racemes* subclaxly flowered, shortly cylindric-conical to almost subcapitate, the terminal about 7.5 cm long $\times$ 7.5 cm diam., the laterals shorter; pedicels, buds and flowers widely spreading, the open flowers becoming nutant; with a small whitish coma of sterile bracts at the apex. *Bracts* triangular attenuate, 7.5—9 mm long, ± 3 mm wide at the base, thin scarious whitish with a blackish brown nerve, rarely with an additional less conspicuous brown nerve to one side; those subtending the lower branches of the inflorescence rather inconspicuous, ± 5 mm long. *Pedicels* 22—27 mm long, the colour of the perianth, minutely white flecked. *Perianth* dull red, greenish at the apex, becoming somewhat yellowish in open flowers, minutely white flecked in bud, 26—29 mm long, slightly decurved, much inflated at the truncate, somewhat obtusely triangular base, about 8 mm diam. across the ovary, abruptly constricted to about 7 mm, again narrowing to ± 6.0 mm at the open mouth; *outer segments* free for 6.5—8 mm, very slightly spreading at the apex, with paler coloured margins and 5 brownish nerves, the three central confluent at the apex and the two lateral shorter and somewhat obscure; *inner segments* wider than the outer, with wide translucent whitish margins and

3 confluent dark nerves. *Filaments* whitish at the base, pale green above, filiform flattened with the anthers not or only rarely slightly exerted. *Ovary* pale green, 5.5 mm long, more or less cylindric, ± 2.5 mm diam. towards the base, tapering very slightly to ± 2 mm diam. at the apex, 6-grooved; *style* yellow towards the base becoming greenish above; *stigma* white, scarcely or not exerted.

Aloe inamara would fit into the key in Reynolds, *The Aloes of Tropical Africa and Madagascar* (1966) under:—

Group 10. Plants pendent or semi-pendent,
and is distinguished from all others in this group by its longer pedicels and flowers with a much inflated truncate base.

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